

# THE CHINESE UNIVERSITY OF HONG KONG

## Aerospace Science and Earth Informatics & X Double Major Programme

### Lists of Substitute / Equivalent / Alternative Courses between CUHK and CUHK(SZ)

Applicable to students admitted in 2026-27

(for students admitted by CUHK)

*Note:*

*The substitute / equivalent / alternative courses are not transitive. If Courses A and B are substitute / equivalent / alternative courses, and courses A and C are substitute / equivalent / alternative courses, it does not necessarily follow that B and C are also substitute / equivalent / alternative courses. Nonetheless, students should not take both courses B and C.*

### **Faculty Package**

| Courses offered by CUHK |                                         | Courses offered by CUHK(SZ) |                                                           |
|-------------------------|-----------------------------------------|-----------------------------|-----------------------------------------------------------|
| ENGG1110                | Problem Solving by Programming          | CSC1001                     | Introduction to Computer Science: Programming Methodology |
| GRMD1401                | A World of Diversity                    | URM2010                     | Cities, Society and Environment                           |
| MATH1010                | University Mathematics                  | MAT1001/MAT1011             | Calculus I/Honours Calculus I                             |
| ENGG1125                | Single Variable Calculus for Engineers  | MAT1001/MAT1011             | Calculus I/Honours Calculus I                             |
| MATH1520                | University Mathematics for Applications | MAT1001/MAT1011             | Calculus I/Honours Calculus I                             |

### **1<sup>st</sup> Major: Aerospace Science and Earth Informatics – Required Courses**

| Courses offered by CUHK |                                                                    | Courses offered by CUHK(SZ) |                                                       |
|-------------------------|--------------------------------------------------------------------|-----------------------------|-------------------------------------------------------|
| ENGG1120                | Linear Algebra for Engineers                                       | MAT2040                     | Linear Algebra                                        |
| GRMD2104                | Remote Sensing of Environment                                      | URM2110                     | Introduction to Urban Remote Sensing                  |
| GRMD2105                | Introduction to GIS                                                | URM2040                     | Principles and Application of GIS in Urban Management |
| PHYS1110                | Engineering Physics: Mechanics and Thermodynamics                  | PHY1001/PHY1011             | Mechanics/Honours Mechanics                           |
| PHYS1111                | Introduction to Mechanics, Fluids and Waves (University Physics I) | PHY1001/PHY1011             | Mechanics/Honours Mechanics                           |

### **1<sup>st</sup> Major: Aerospace Science and Earth Informatics – Elective Courses (covering all areas)**

Please refer to the study scheme for the elective courses specific to each area of study.

| Courses offered by CUHK |                                                                            | Courses offered by CUHK(SZ) |                                                      |
|-------------------------|----------------------------------------------------------------------------|-----------------------------|------------------------------------------------------|
| CHEM1070                | Principles of Modern Chemistry                                             | CHM1001                     | General Chemistry                                    |
| CHEM1072                | General Chemistry                                                          | CHM1001                     | General Chemistry                                    |
| EEEN2030                | Energy and Environmental Economics and Management                          | ENE4007                     | Energy Economics                                     |
| EEEN3030                | Engineering Materials                                                      | ENE3006                     | Materials for Energy Applications                    |
| EEEN4020                | Solar Energy and Photovoltaic Technology                                   | ENE3004                     | Fundamentals of Photovoltaic Materials and Devices   |
| EEEN4050                | Energy Storage Devices and Systems                                         | ENE3005                     | Fundamentals of Electrochemistry and Batteries       |
| EESC3800                | Global Environmental Change                                                | GLB3060                     | Global Change and Environmental Sustainability       |
| EESC4510                | Statistical Methods and Data Analysis for Earth and Environmental Sciences | STA3020                     | Statistical Inference                                |
| EESC4520                | Numerical Methods and Modeling for Earth and Environmental Sciences        | DDA3005                     | Numerical Methods                                    |
| ELEG2202                | Fundamentals of Electric Circuits                                          | ECE2001                     | Basic Circuit Theory                                 |
| ELEG3207                | Introduction to Power Electronics                                          | ENE4008                     | Power Electronics                                    |
| ELEG3601                | Introduction to Electric Power Systems                                     | ENE3050                     | Electrical Power Systems                             |
| ENGG2020                | Digital Logic and Systems                                                  | ECE2050                     | Digital Logic and Systems                            |
| GRMD3203                | Urban Environmental Problems                                               | URM3030                     | Urban Environmental Management and Policy            |
| GRMD3302                | Population and Migration                                                   | URM3120                     | Population, Urbanization and Sustainable Development |
| GRMD3404                | Natural Hazards and Human Responses                                        | URM4110                     | Urban Security and Risk Management                   |
| GRMD4502                | Urban Big Data Analysis and Application                                    | URM4020                     | Urban Data and Informatics                           |
| GRMD4503                | Smart City Policies and Governance                                         | URM4010                     | Smart Cities and Management                          |
| MAEG3060                | Introduction to Robotics                                                   | ECE3060                     | Introduction to Robotics                             |
| MAEG3080                | Fundamentals of Machine Intelligence                                       | DDA3020                     | Machine Learning                                     |
| MAEG3080                | Fundamentals of Machine Intelligence                                       | ECE4010                     | Machine Intelligence and Applications                |
| MAEG4070                | Engineering Optimization                                                   | MAT3007                     | Optimization                                         |
| MATH1030                | Linear Algebra I                                                           | MAT2040                     | Linear Algebra                                       |
| MATH2010                | Advanced Calculus I                                                        | MAT1002/<br>MAT1012         | Calculus II/Honours Calculus II                      |

|          |                                                                    |                     |                                                       |
|----------|--------------------------------------------------------------------|---------------------|-------------------------------------------------------|
| MATH3270 | Ordinary Differential Equations                                    | MAT2001             | Honours Ordinary Differential Equations               |
| PHYS1122 | University Physics II – Introduction to Optics and Modern Physics  | PHY2020             | Principles of Physics III (Optics and Modern Physics) |
| PHYS1712 | Physics Laboratory I                                               | PHY1910             | Physics Laboratory I                                  |
| PHYS2041 | University Physics III – Introduction to Heat and Electromagnetism | PHY1010             | Principles of Physics II (Thermodynamics and EM)      |
| PHYS2051 | Quantitative Methods for Basic Physics                             | MAT1002/<br>MAT1012 | Calculus II/Honours Calculus II                       |
| PHYS2061 | Basic Computational Physics                                        | PHY2650             | Computational Physics and AI Tools                    |
| PHYS3011 | Classical Mechanics I                                              | PHY3110             | Classical Mechanics I                                 |
| PHYS3021 | Quantum Mechanics I                                                | PHY3410             | Quantum Mechanics and its Applications I              |
| PHYS3022 | Applied Quantum Mechanics                                          | PHY3420             | Quantum Mechanics and its Applications II             |
| PHYS3031 | Thermodynamics and Statistical Physics                             | PHY2002             | Thermodynamics                                        |
| PHYS3041 | Electromagnetic Theory I                                           | PHY3002             | Electrodynamics I                                     |
| PHYS3041 | Electromagnetic Theory I                                           | PHY3310             | Electromagnetic Theory I                              |
| PHYS3051 | Methods in Theoretical Physics I                                   | PHY2610             | Mathematical Methods in Physics I                     |
| PHYS3061 | Introduction to Computer Simulation of Physical Systems            | PHY3650             | Computer Simulation of Physical Systems               |
| PHYS3410 | Practical Electronics                                              | PHY3950             | Basic Electronics                                     |
| PHYS3730 | Basic Instrumentation                                              | PHY3960             | Basic Instrumentation                                 |
| PHYS4031 | Statistical Mechanics                                              | PHY4510             | Statistical Mechanics and its Applications            |
| PHYS4041 | Electromagnetic Theory II                                          | PHY3320             | Electromagnetic Theory II                             |
| PHYS4041 | Electromagnetic Theory II                                          | PHY4002             | Electrodynamics II                                    |
| PHYS4050 | Solid State Physics                                                | PHY4001             | Solid-State Physics                                   |
| PHYS4430 | Astrophysics                                                       | PHY3820             | Introduction to Astronomy and Astrophysics            |
| PHYS4450 | Optical Physics                                                    | PHY3810             | Modern Optical Physics                                |
| STAT2001 | Basic Concepts in Statistics and Probability I                     | STA2001             | Probability and Statistics I                          |
| URSP2100 | Urban Sustainability                                               | URM3010             | Urban Sustainability                                  |

## 2<sup>nd</sup> Major: Energy and Environmental Engineering (offered by CUHK)

| Courses offered by CUHK |                               | Courses offered by CUHK(SZ) |                                      |
|-------------------------|-------------------------------|-----------------------------|--------------------------------------|
| EEEN2020                | Renewable Energy Technologies | ENE4005                     | Energy Resources and the Environment |

|          |                                                   |                 |                                           |
|----------|---------------------------------------------------|-----------------|-------------------------------------------|
| EEEN2030 | Energy and Environmental Economics and Management | ENE4007         | Energy Economics                          |
| EEEN3030 | Engineering Materials                             | ENE3006         | Materials for Energy Applications         |
| EEEN4060 | Energy Distribution                               | ENE4011         | Smart Grid                                |
| ELEG2202 | Fundamentals of Electric Circuits                 | ECE2001         | Basic Circuit Theory                      |
| ELEG3207 | Introduction to Power Electronics                 | ENE4008         | Power Electronics                         |
| ENGG1130 | Multivariable Calculus for Engineers              | MAT1002/MAT1012 | Calculus II/Honours Calculus II           |
| MAEG2030 | Thermodynamics                                    | PHY2002         | Thermodynamics                            |
| MAEG3030 | Fluid Mechanics                                   | PHY2010         | Fluid Mechanics                           |
| MAEG4030 | Heat Transfer                                     | ENE3003         | Heat and Mass Transfer for Energy Systems |

## 2<sup>nd</sup> Major: Mechanical and Automation Engineering (offered by CUHK)

| Courses offered by CUHK |                                      | Courses offered by CUHK(SZ) |                                           |
|-------------------------|--------------------------------------|-----------------------------|-------------------------------------------|
| EEEN3030                | Engineering Materials                | ENE3006                     | Materials for Energy Applications         |
| ELEG2202                | Fundamentals of Electric Circuits    | ECE2001                     | Basic Circuit Theory                      |
| ENGG1130                | Multivariable Calculus for Engineers | MAT1002/MAT1012             | Calculus II/Honours Calculus II           |
| ENGG2740                | Differential Equations for Engineers | MAT2002                     | Ordinary Differential Equations           |
| MAEG2030                | Thermodynamics                       | PHY2002                     | Thermodynamics                            |
| MAEG3030                | Fluid Mechanics                      | PHY2010                     | Fluid Mechanics                           |
| MAEG3050                | Introduction to Control Systems      | EIE3250                     | System & Control                          |
| MAEG4030                | Heat Transfer                        | ENE3003                     | Heat and Mass Transfer for Energy Systems |

## 2<sup>nd</sup> Major: Earth and Environmental Sciences (offered by CUHK)

| Courses offered by CUHK |                                                              | Courses offered by CUHK(SZ) |                                      |
|-------------------------|--------------------------------------------------------------|-----------------------------|--------------------------------------|
| CHEM1070                | Principles of Modern Chemistry                               | CHM1001                     | General Chemistry                    |
| CHEM1072                | General Chemistry                                            | CHM1001                     | General Chemistry                    |
| EESC3020                | Analytical Methods for Earth and Environmental Sciences      | PHY2610                     | Mathematical Methods in Physics I    |
| EESC3230                | Principles of Environmental Protection and Pollution Control | ENE4005                     | Energy Resources and the Environment |
| EESC3415                | Environmental Instrumentation Techniques                     | CHM2110                     | Analytical Chemistry                 |

|          |                                                                     |         |                                                |
|----------|---------------------------------------------------------------------|---------|------------------------------------------------|
| EESC3417 | Environmental Instrumentation Techniques Laboratory                 | CHM2118 | Physical Chemistry Laboratory                  |
| EESC3800 | Global Environmental Change                                         | GLB3060 | Global Change and Environmental Sustainability |
| EESC4520 | Numerical Methods and Modeling for Earth and Environmental Sciences | MAT4240 | Numerical Methods for Differential Equations   |
| EESC4540 | Remote Sensing – Principles and Applications                        | URM2110 | Introduction to Urban Remote Sensing           |

## 2<sup>nd</sup> Major: Physics (offered by CUHK)

| Courses offered by CUHK |                                                                    | Courses offered by CUHK(SZ) |                                                       |
|-------------------------|--------------------------------------------------------------------|-----------------------------|-------------------------------------------------------|
| PHYS1122                | University Physics II – Introduction to Optics and Modern Physics  | PHY2020                     | Principles of Physics III (Optics and Modern Physics) |
| PHYS1712                | Physics Laboratory I                                               | PHY1910                     | Physics Laboratory I                                  |
| PHYS2041                | University Physics III – Introduction to Heat and Electromagnetism | PHY1010                     | Principles of Physics II (Thermodynamics and EM)      |
| PHYS2051                | Quantitative Methods for Basic Physics                             | MAT1002 /MAT1012            | Calculus II/Honours Calculus II                       |
| PHYS2061                | Basic Computational Physics                                        | PHY2650                     | Computational Physics and AI Tools                    |
| PHYS3011                | Classical Mechanics I                                              | PHY3110                     | Classical Mechanics I                                 |
| PHYS3021                | Quantum Mechanics I                                                | PHY3410                     | Quantum Mechanics and its Applications I              |
| PHYS3022                | Applied Quantum Mechanics                                          | PHY3420                     | Quantum Mechanics and its Applications II             |
| PHYS3031                | Thermodynamics and Statistical Physics                             | PHY2002                     | Thermodynamics                                        |
| PHYS3041                | Electromagnetic Theory I                                           | PHY3002                     | Electrodynamics I                                     |
| PHYS3041                | Electromagnetic Theory I                                           | PHY3310                     | Electromagnetic Theory I                              |
| PHYS3051                | Methods in Theoretical Physics I                                   | PHY2610                     | Mathematical Methods in Physics I                     |
| PHYS3061                | Introduction to Computer Simulation of Physical Systems            | PHY3650                     | Computer Simulation of Physical Systems               |
| PHYS3410                | Practical Electronics                                              | PHY3950                     | Basic Electronics                                     |
| PHYS4011                | Classical Mechanics II                                             | PHY3120                     | Classical Mechanics II                                |
| PHYS4031                | Statistical Mechanics                                              | PHY4510                     | Statistical Mechanics and its Applications            |
| PHYS4041                | Electromagnetic Theory II                                          | PHY3320                     | Electromagnetic Theory II                             |
| PHYS4041                | Electromagnetic Theory II                                          | PHY4002                     | Electrodynamics II                                    |

|          |                     |         |                                            |
|----------|---------------------|---------|--------------------------------------------|
| PHYS4050 | Solid State Physics | PHY4001 | Solid-State Physics                        |
| PHYS4430 | Astrophysics        | PHY3820 | Introduction to Astronomy and Astrophysics |
| PHYS4450 | Optical Physics     | PHY3810 | Modern Optical Physics                     |
| PHYS4460 | Relativity          | PHY4810 | Relativity                                 |
| PHYS4610 | Senior Project I    | PHY4270 | Senior Project I                           |

## 2<sup>nd</sup> Major: Geography and Resource Management (offered by CUHK)

| Courses offered by CUHK |                                         | Courses offered by CUHK(SZ) |                                                      |
|-------------------------|-----------------------------------------|-----------------------------|------------------------------------------------------|
| GRMD2102                | Fundamental Statistics for Geographers  | URM2030                     | Statistical Analysis and Application                 |
| GRMD2303                | Urban Geography                         | URM3130                     | Globalization and Cities                             |
| GRMD2401                | Sustainable Development                 | URM3010                     | Urban Sustainability                                 |
| GRMD3102                | Research Design and Methodology         | URM3020                     | Research Methods for Urban Studies                   |
| GRMD3203                | Urban Environmental Problems            | URM3030                     | Urban Environmental Management and Policy            |
| GRMD3302                | Population and Migration                | URM3120                     | Population, Urbanization and Sustainable Development |
| GRMD3305                | Transport Geography                     | URM3140                     | Urban Transportation System                          |
| GRMD3323                | Urban and Regional Planning             | URM3040                     | Urban and Regional Planning                          |
| GRMD3404                | Natural Hazards and Human Responses     | URM4110                     | Urban Security and Risk Management                   |
| GRMD4502                | Urban Big Data Analysis and Application | URM4020                     | Urban Data and Informatics                           |
| GRMD4503                | Smart City Policies and Governance      | URM4010                     | Smart Cities and Management                          |

## 2<sup>nd</sup> Major: Data Science and Big Data Technology (offered by CUHK(SZ))

| Courses offered by CUHK(SZ) |                                   | Courses offered by CUHK |                                                                     |
|-----------------------------|-----------------------------------|-------------------------|---------------------------------------------------------------------|
| CSC3100                     | Data Structures                   | CSCI2100                | Data Structures                                                     |
| CSC3170                     | Database System                   | CSCI3170                | Introduction to Database Systems                                    |
| CSC4120                     | Design and Analysis of Algorithms | CSCI3160                | Design and Analysis of Algorithms                                   |
| DDA3005                     | Numerical Methods                 | EESC4520                | Numerical Methods and Modeling for Earth and Environmental Sciences |
| DDA3020                     | Machine Learning                  | CSCI3320                | Fundamentals of Machine Learning                                    |
| DDA3020                     | Machine Learning                  | MAEG3080                | Fundamentals of Machine Intelligence                                |
| MAT1002/<br>MAT1012         | Calculus II/Honours Calculus II   | MATH2010                | Advanced Calculus I                                                 |

|         |                               |          |                                                                            |
|---------|-------------------------------|----------|----------------------------------------------------------------------------|
| MAT3007 | Optimization                  | MAEG4070 | Engineering Optimization                                                   |
| STA2001 | Probability and Statistics I  | STAT2001 | Basic Concepts in Statistics and Probability I                             |
| STA2002 | Probability and Statistics II | STAT2006 | Basic Concepts in Statistics and Probability II                            |
| STA3020 | Statistical Inference         | EESC4510 | Statistical Methods and Data Analysis for Earth and Environmental Sciences |
| STA4001 | Stochastic Processes          | MATH4240 | Stochastic Processes                                                       |
| STA4001 | Stochastic Processes          | STAT3007 | Introduction to Stochastic Processes                                       |

## 2<sup>nd</sup> Major: Urban Management (offered by CUHK(SZ))

| Courses offered by CUHK(SZ) |                                                      | Courses offered by CUHK |                                              |
|-----------------------------|------------------------------------------------------|-------------------------|----------------------------------------------|
| URM2020                     | Urban Economics                                      | URSP2200                | Urban Economic Studies                       |
| URM2030                     | Statistical Analysis and Application                 | GRMD2102                | Fundamental Statistics for Geographers       |
| URM3010                     | Urban Sustainability                                 | URSP2100                | Urban Sustainability                         |
| URM3020                     | Research Methods for Urban Studies                   | GRMD3102                | Research Design and Methodology              |
| URM3030                     | Urban Environmental Management and Policy            | GRMD3203                | Urban Environmental Problems                 |
| URM3040                     | Urban and Regional Planning                          | GRMD3323                | Urban and Regional Planning                  |
| URM3050                     | Urban Form, Design and Place Making                  | URSP2800                | Urban Form, Sense of Place and Well-Being    |
| URM3110                     | Urban History and Culture                            | URSP2030                | Urban Cultures                               |
| URM3120                     | Population, Urbanization and Sustainable Development | GRMD3302                | Population and Migration (alternative year)  |
| URM3130                     | Globalization and Cities                             | GRMD2303                | Urban Geography                              |
| URM3130                     | Globalization and Cities                             | URSP2400                | Studies of Cities in Comparative Perspective |
| URM4010                     | Smart Cities and Management                          | GRMD4503                | Smart City Policies and Governance           |
| URM4020                     | Urban Data and Informatics                           | GRMD4502                | Urban Big Data Analysis and Application      |
| URM4110                     | Urban Security and Risk Management                   | GRMD3404                | Natural Hazards and Human Responses          |
| URM4120                     | Urban Housing and Land Market                        | URSP3100                | Housing Issues and Policy                    |
| URM3140                     | Urban Transportation System                          | URSP3300                | Sustainable Urban Transport                  |
| URM4150                     | Urban Spatial Analysis and Modeling                  | GRMD3106                | Advanced GIS                                 |

## 2<sup>nd</sup> Major: Electrical and Computer Engineering (offered by CUHK(SZ))

| Courses offered by CUHK(SZ) | Courses offered by CUHK |
|-----------------------------|-------------------------|
|-----------------------------|-------------------------|

|                     |                                              |          |                                                          |
|---------------------|----------------------------------------------|----------|----------------------------------------------------------|
| CSC3002             | C/C++ Programming                            | CSCI1120 | Introduction to Computing Using C++                      |
| CSC3100             | Data Structures                              | CSCI2100 | Data Structures                                          |
| CSC3150             | Operating Systems                            | CSCI3150 | Introduction to Operating Systems                        |
| CSC3180             | Fundamentals of Artificial Intelligence      | CSCI3230 | Fundamentals of Artificial Intelligence                  |
| CSC4001             | Software Engineering                         | IERG3080 | Information and Software Engineering Practice            |
| CSC4005             | Parallel Programming                         | CSCI4160 | Distributed and Parallel Computing                       |
| DDA3020             | Machine Learning                             | CSCI3320 | Fundamentals of Machine Learning                         |
| ECE1810             | Electronic Circuit Design Laboratory         | IERG1810 | Electronic Circuit Design Laboratory                     |
| ECE3001             | Signal and Systems                           | IERG2051 | Signal and Systems                                       |
| ECE3050             | Principles of Communication Systems          | IERG2310 | Principles of Communication Systems                      |
| ECE3080             | Introduction to Embedded Systems             | IERG3060 | Microcontrollers and Embedded Systems                    |
| ECE3280             | Networks: Technology, Economics and Society  | IERG3280 | Networks: Technology, Economics, and Social Interactions |
| ECE3510             | Digital Signal Processing                    | ELEG3503 | Introduction to Digital Signal Processing                |
| ECE3810             | Embedded Systems Laboratory                  | IERG3810 | Microcontrollers and Embedded Systems Laboratory         |
| ECE4002             | Digital Communications                       | IERG3010 | Digital Communications                                   |
| ECE4003             | Wireless Communication Systems               | IERG4100 | Wireless Communication Systems                           |
| ECE4004             | Introduction to Optical Communications       | IERG4030 | Optical Communications                                   |
| ECE4010             | Introduction to Optical Communications       | CSCI3230 | Fundamentals of Artificial Intelligence                  |
| ECE4016             | Computer Networks                            | IERG3310 | Computer Networks                                        |
| ECE4300             | Systems Design in Human-Computer Interaction | IERG3320 | Social Media and Human Information Interaction           |
| ECE4512             | Digital Image Processing                     | IERG4160 | Image Processing and Visual Understanding                |
| ERG4902             | Capstone Project   I                         | IERG4998 | Final Year Project I                                     |
| ERG4902             | Capstone Project   I                         | IERG4999 | Final Year Project II                                    |
| MAT1002/<br>MAT1012 | Calculus II/Honours Calculus II              | MATH2010 | Advanced Calculus I                                      |
| MAT3007             | Optimization                                 | MATH3215 | Operations Research                                      |

|         |                                |          |                                                |
|---------|--------------------------------|----------|------------------------------------------------|
| MAT4007 | Introduction to Cryptography   | IERG4150 | Introduction to Cryptography                   |
| MAT4220 | Partial Differential Equations | MATH4220 | Partial Differential Equations                 |
| STA2001 | Probability and Statistics I   | STAT2001 | Basic Concepts in Statistics and Probability I |
| STA4001 | Stochastic Processes           | MATH4240 | Stochastic Processes                           |

## 2<sup>nd</sup> Major: New Energy Science and Engineering (offered by CUHK(SZ))

| Courses offered by CUHK(SZ) |                                                    | Courses offered by CUHK |                                                   |
|-----------------------------|----------------------------------------------------|-------------------------|---------------------------------------------------|
| CSC3002                     | C/C++ Programming                                  | CSCI1120                | Introduction to Computing Using C++               |
| CSC3150                     | Operating System                                   | CSCI3150                | Introduction to Operating Systems                 |
| DDA3020                     | Machine Learning                                   | CSCI3320                | Fundamentals of Machine Learning                  |
| ECE2001                     | Basic Circuit Theory                               | ELEG2202                | Fundamentals of Electric Circuits                 |
| ENE3004                     | Fundamentals of Photovoltaic Materials and Devices | EEEN4020                | Solar Energy and Photovoltaic Technology          |
| ENE3005                     | Fundamentals of Electrochemistry and Batteries     | EEEN4050                | Energy Storage Devices and Systems                |
| ENE3050                     | Electrical Power Systems                           | ELEG3601                | Introduction to Electric Power Systems            |
| ENE4005                     | Energy Resources and the Environment               | EEEN2020                | Renewable Energy Technologies                     |
| ENE4007                     | Energy Economics                                   | EEEN2030                | Energy and Environmental Economics and Management |
| ENE4008                     | Power Electronics                                  | ELEG3207                | Introduction to Power Electronics                 |
| ENE4011                     | Smart Grid                                         | EEEN4060                | Energy Distribution                               |
| ERG4902                     | Capstone Project   I                               | EEEN4998                | Final Year Project I                              |
| PHY1910                     | Physics Laboratory I                               | PHYS1712                | Physics Laboratory I                              |

## 2<sup>nd</sup> Major: Physics (offered by CUHK(SZ))

| Courses offered by CUHK(SZ) |                                                  | Courses offered by CUHK |                                                                    |
|-----------------------------|--------------------------------------------------|-------------------------|--------------------------------------------------------------------|
| MAT1002/<br>MAT1012         | Calculus II/Honours Calculus II                  | MATH2010                | Advanced Calculus I                                                |
| MAT1002/<br>MAT1012         | Calculus II/Honours Calculus II                  | PHYS2051                | Quantitative Methods for Basic Physics                             |
| MAT2001                     | Honours Ordinary Differential Equations          | MATH3270                | Ordinary Differential Equations                                    |
| PHY1010                     | Principles of Physics II (Thermodynamics and EM) | PHYS2041                | University Physics III – Introduction to Heat and Electromagnetism |
| PHY1210                     | Student Oriented Learning I                      | PHYS2510                | Student Centred Learning I                                         |
| PHY1910                     | Physics Laboratory I                             | PHYS1712                | Physics Laboratory I                                               |

|         |                                                       |          |                                                                   |
|---------|-------------------------------------------------------|----------|-------------------------------------------------------------------|
| PHY2002 | Thermodynamics                                        | PHYS3031 | Thermodynamics and Statistical Physics                            |
| PHY2020 | Principles of Physics III (Optics and Modern Physics) | PHYS1122 | University Physics II – Introduction to Optics and Modern Physics |
| PHY2610 | Mathematical Methods in Physics I                     | PHYS3051 | Methods in Theoretical Physics I                                  |
| PHY2650 | Computational Physics and AI Tools                    | PHYS2061 | Basic Computational Physics                                       |
| PHY3002 | Electrodynamics I                                     | PHYS3041 | Electromagnetic Theory I                                          |
| PHY3110 | Classical Mechanics I                                 | PHYS3011 | Classical Mechanics I                                             |
| PHY3120 | Classical Mechanics II                                | PHYS4011 | Classical Mechanics II                                            |
| PHY3210 | Experimental Physics Project Experience I             | PHYS2610 | Short Project I                                                   |
| PHY3230 | Theoretical Physics Project Experience I              | PHYS2610 | Short Project I                                                   |
| PHY3310 | Electromagnetic Theory I                              | PHYS3041 | Electromagnetic Theory I                                          |
| PHY3320 | Electromagnetic Theory II                             | PHYS4041 | Electromagnetic Theory II                                         |
| PHY3410 | Quantum Mechanics and its Applications I              | PHYS3021 | Quantum Mechanics I                                               |
| PHY3420 | Quantum Mechanics and its Applications II             | PHYS3022 | Applied Quantum Mechanics                                         |
| PHY3650 | Computer Simulation of Physical Systems               | PHYS3061 | Introduction to Computer Simulation of Physical Systems           |
| PHY3810 | Modern Optical Physics                                | PHYS4450 | Optical Physics                                                   |
| PHY3820 | Introduction to Astronomy and Astrophysics            | PHYS4430 | Astrophysics                                                      |
| PHY3950 | Basic Electronics                                     | PHYS3410 | Practical Electronics                                             |
| PHY3960 | Basic Instrumentation                                 | PHYS3730 | Basic Instrumentation                                             |
| PHY4001 | Solid-State Physics                                   | PHYS4050 | Solid State Physics                                               |
| PHY4002 | Electrodynamics II                                    | PHYS4041 | Electromagnetic Theory II                                         |
| PHY4240 | Seminar I                                             | PHYS4801 | Seminar I                                                         |
| PHY4510 | Statistical Mechanics and its Applications            | PHYS4031 | Statistical Mechanics                                             |
| PHY4810 | Relativity                                            | PHYS4460 | Relativity                                                        |
| STA2001 | Probability and Statistics I                          | STAT2001 | Basic Concepts in Statistics and Probability I                    |